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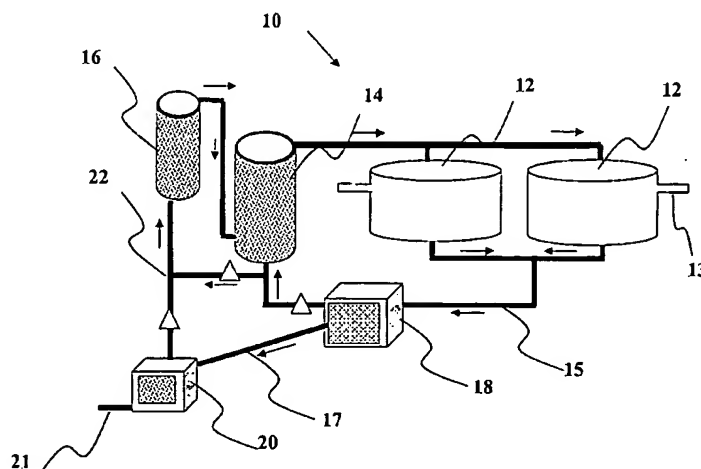
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(54) Title: DISSIMILATORY SULFATE REDUCTION AS A PROCESS TO PROMOTE DENITRIFICATION IN MARINE RECIRCULATING AQUACULTURE SYSTEMS



(57) Abstract: The present invention relates to a novel approach for nitrate removal from a marine recirculating system (10) wherein high concentrations of sulfate found in seawater is used in combination with sludge (20) collected from fish growing tanks (12) to promote dissimilatory sulfate reduction to hydrogen sulfide. The sulfide is used as an electron source to promote autotrophic denitrification in an up-flow fix bed bioreactor (16), followed by nitrification in a nitrification unit (14). By utilizing the symbiotic relationship between the sulfate-reducing and sulfide-oxidizing bacterial community, nitrate accumulation is controlled in the recirculating water of the system thereby reducing water exchange in the marine recirculating system.